

SUPPORT FOR THE AMENDMENTS

This Amendment cancels Claims 2, 9-15 and 17-18; and amends Claim 1. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 1 is found in canceled Claim 2. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1 and 3-8 will be pending in this application. Claim 1 is independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Claims 9-18 are rejected under 35 U.S.C. §103(a) over JP 07034192 or JP 10030152 (collectively "Daizo"). Claims 9-18 are canceled, so the rejection is moot and should be withdrawn.

Claims 1-18 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 4,698,102 ("Maruoka"). Claims 9-18 are canceled, so the rejection as it applies to Claims 9-18 is moot and should be withdrawn. Applicants respectfully traverse the rejection as it applies to Claims 1-8.

Maruoka discloses a process for producing a soft backplate for surface treatment, comprising steps of hot rolling a heated slab to form a strip; cold-rolling the hot-rolled strip to form a cold-rolled strip; continuously annealing the cold-rolled strip, wherein soaking is carried out at a temperature of from Ac_1 to 800°C followed by cooling at a cooling speed of more than $30^{\circ}\text{C}/\text{sec}$ down to a temperature in a range of from 100°C to 250°C ; subsequently reheating to an overaging treatment temperature of from 250°C to 450°C ; and skin-pass rolling at a reduction rate of from 0.2% to 6.0%. Maruoka at column 3, lines 3-35.

However, Maruoka is silent about plastically deforming the strip after Maruoka's cooling at a cooling speed of more than 30°C/sec and before Maruoka's reheating to an overaging treatment temperature of from 250°C to 450°C. Thus, Maruoka fails to suggest the independent Claim 1 limitations of "***rapidly cooling*** the strip to a temperature below 100°C at a cooling rate in excess of 100°C per second, ***then performing a plastic deformation*** operation comprising an elongation of the strip with a percentage elongation ranging between 1 and 5%, ***then thermally treating*** the strip at a low temperature ranging between 100°C and 300°C for a duration in excess of 10 seconds".

The intermediate plastic deformation of the present invention significantly increases the maximum rupture strength R_m of the steel.

This plastic deformation creates dislocations on which there will form, during the thermal treatment at low temperature, COTTRELL atmospheres, that is, accumulations of free carbon and nitrogen atoms around the dislocations generated by the plastic deformation, and/or epsilon carbides. Thus, following the thermal treatment at low temperature, the dislocations generated by the deformation of the material will be immobilized or anchored by these COTTRELL atmospheres, which has the effect of hardening the steel.

As is seen on Fig. 8 [reproduced below], at an identical total percentage elongation, the maximum rupture strength R_m of the steel A increases significantly if a small plastic deformation by elongation [DP in Fig. 8] is performed between annealing at high temperature and thermal treatment at low temperature. Specification at page 11, lines 8-17.

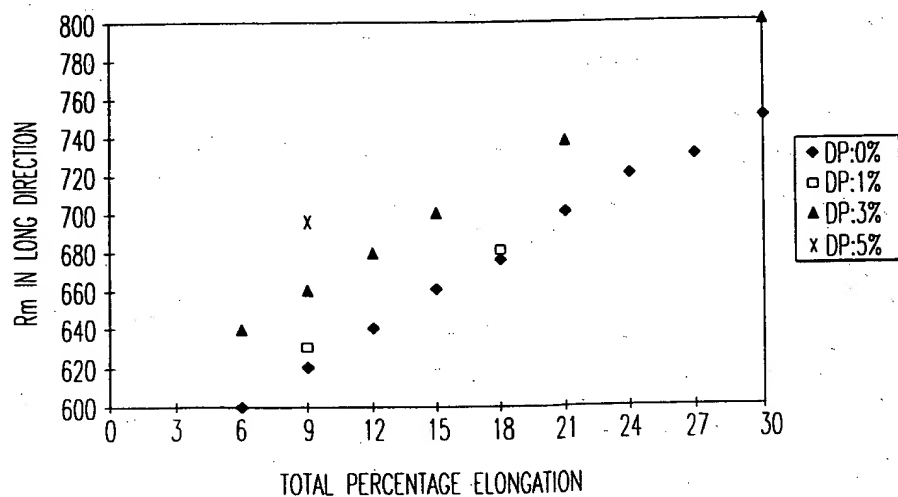


FIG. 8

Because Maruoka fails to suggest all the limitations of independent Claim 1, and Claims 9-18 are canceled, the rejection over Maruoka should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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